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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------------------|
| 10/589,028 | 09/18/2007 | Sanyal Sarbendu | 4544-061763 | 4215 |
| 28289 | 7590 | 06/02/2009 | EXAMINER | |
| THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219 | | | | MCGUTHRY BANKS, TIMA MICHELE |
| ART UNIT | | PAPER NUMBER | | |
| 1793 | | | | |
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| 06/02/2009 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/589,028 | SARBENDU ET AL. |
| | Examiner | Art Unit |
| | TIMA M. MCGUTHRY-BANKS | 1793 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 02 March 2009.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,3 and 6-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,3 and 6-9 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Status of Claims

Claims 1 and 3 are currently amended, Claims 2, 4 and 5 are cancelled and Claims 6-9 are as previously presented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3 and 6-9 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide for the ladle to have a 3m liquid column height. The specification provides for the depth of injection at 3 m with respect to the cored wire.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3 and 6-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

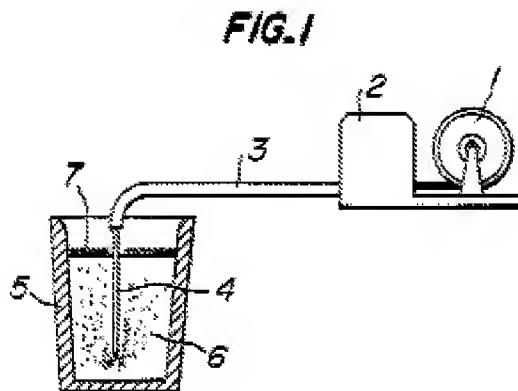
In Claim 1, the recitation of the dimension and speed of the cored wire being determined depending on the claimed parameters is indefinite because the applicant has already identified those parameters in the claim. One of ordinary skill in the art would be not able to determine these parameters with this claim. Claims dependent on claim 1 are likewise rejected under this statute.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ototani (US 4,094,666) in view of Ototani (US 4,832,742).

Ototani '666 teaches refining molten iron and steels as shown in FIG. 1:



The additives are released at the bottom as shown. The flow rate is within a set range (column 4, line 58). The material is composite clad obtained by a core material (abstract). The treatment temperature is predetermined (column 4, line 28), for example 1600 °C (line 20); a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See MPEP § 2144.05 I. The steel must be treated with flux (column 5, lines 1-21). The core material reaches a position of 750 mm below the molten metal surface, which relates to the size of the ladle (column 4, lines 28-30). Ototani '666 teaches the speed of injection, 20-500 m/min (abstract), broader than that which is claimed, or 110 m/min. In the case where the claimed ranges overlap or lie inside ranges disclosed by the prior art, a *prima facie* case of obviousness exists. See MPEP § 2144.05. Ototani '666 teaches embodiments of clad dimensions that are not within the claimed range, but Ototani '666 does not teach away from other sizes. Regarding the size of wire, Ototani '742 teaches a flexible refining-agent clad wire for refining molten iron (title). The diameter of the clad wire is 8-25 mm and the metallic sheath thickness is 0.3-1.00 mm. The wire has grooves (Claim 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the wire of Ototani '742 in the process of Ototani '66, since Ototani '742 teaches that the grooves allow for the wire to be flexible (column 2, lines 3-11). Regarding the ladle size, Ototani '666 teaches ladles with various amounts of steel. Examples include 12 ton in Ex 1, 2 tons in Ex 2, 12 ton in Ex 3 and 20 ton in Ex 9. A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable

might be characterized as routine experimentation; therefore a *prima facie* case of obviousness exists. See MPEP § 2144.05 II B.

Regarding Claims 6-9, Ototani '666 teaches that the additives include CaFeSi, MgFeSi, and CaSi (column 3, lines 32-40).

Response to Arguments

Applicant's arguments filed 3/02/2009 have been fully considered but they are not persuasive. Applicant argues that the broad ranges for diameter and thickness of the wire and the injection speed are too broad to read on the claims. Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range or by showing that the art, in any material respect, teaches away from the claimed invention. See MPEP § 2144.05 III. Regarding the temperature, this limitation is addressed above. Regarding the temperature, ladle size, liquid column height and properties of the cored wire material, these limitations as claimed are met by the cited prior art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Wyszomierski/
Primary Examiner
Art Unit 1793

/T. M. M./
Examiner, Art Unit 1793
1 June 2009